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THE
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☞See advertisement on last page.

Poetry.

THE PRESS.

BY EBENEZER ELLIOT, THE CORN-LAW RHYMER.

" God said—" Let there be light?"
Grim darkness felt his might,
And fled away;
Then startled seas, and mountains cold,
Shone forth, all bright in blue and gold.
And cried—" 'Tis day! 'tis day,"
" Hail holy light!" exclaim'd
The thundrous cloud that flam'd
O'er daisies white;
And lo; the rose in crimson dress'd
Lean'd sweetly on the lilly's breast;
And blushing, murmured—" Light!"
Then was the sky-lark born,
Then rose the embattled corn;
Then floods of praise
Flowed o'er the sunny hills of noon;
And then, in stillest night, the moon,
Poured forth her pensive lays,
Lo, heaven's bright brow is glad!
Lo, trees and flowers all clad
In glory bloom!
And shall the mortal sons of God
Be senseless as the trodden clod,
And darker than the tomb?
No, by the mind of man,
By the swart artizan?
By God, our sire,
Our souls have holy light within,
And every form of grief and sin
Shall see and feel its fire,
By earth, and hell, and heaven,
The shroud of souls is riven!
Mind, mind alone,
Is light, and hope, and life and power!
Earth's deepest night from this blest hour,
The night of minds is gone!
" The Press!" all lands shall sing,
" The Press, the Press we bring,
All land's to bless:
O, pallid want! O, labor stark;
Behold, we bring the second ark!
The Press! The Press! The Press!"

LEND A HAND.

BY R. CHILTON.

Heed the words, thou man of wealth!
Bring back the fading hue of health
In the poor man's sunken cheek—
Thou art strong, and he is weak,
He hath neither gold nor land:
Help to raise him—'lend a hand.'

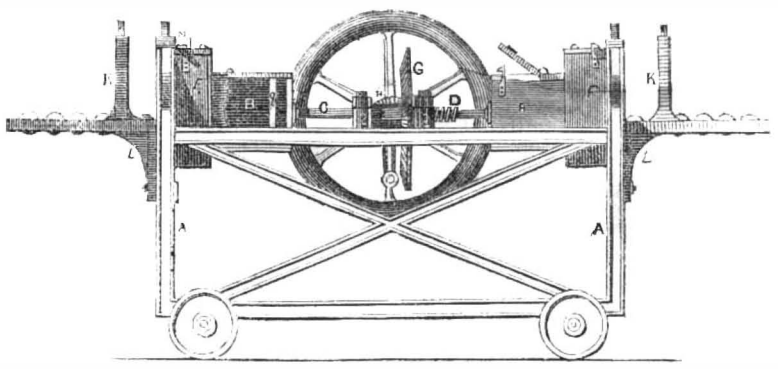
Heed the words, thou poor man?—thou
Who livest by thy sweating brow;
If a sinking brother need
Thy assistance, give him heed:
Thou may'st better understand,
What his woes are; 'lend a hand.'

Hear the words, O thou in whom
The softer virtues live and bloom,
If an erring sister claim
Aid and pity in her shame,
Spurn her not, but take thy stand
On higher ground, and 'lend a hand."

Swearing.

The statute law of England has made profane swearing a fineable offence, to the amount of one shilling for the first, two shillings for the second class, and five shillings for *gentlemen*.

AGRICULTURAL POTTERY MACHINE.---Figure 1.

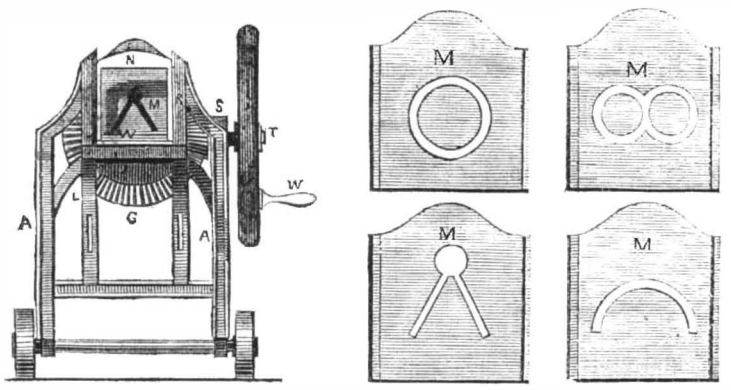


It is well known that *draining* is a most important improvement in modern agriculture, but there is much difficulty experienced in regard to the price and suitableness of materials adapted for this purpose. Bricks and pipes of clay material, are undoubtedly the best and most convenient for building drains, but in the cold winters of our Northern States it has been found that they are much affected by frost expanding the seams which are necessarily moist, and not only the seams but the bricks, which thereby crumble and moulder and soon choke up the drain.

But if this is a just objection to the use of tiles, clay pipes and curved bricks for drains in the Northern States, it cannot be an objection to their use in the Southern and Middle States, and it is to call the attention of our Southern agriculturists to the importance of this subject, that we have taken the pains and been at the expense of getting up these engravings.

Figure 1, represents the side elevation of a machine invented by Mr. Isaac Laslett, of Farnsborough, England, which is for the purpose of moulding tiles and pipes and other plastic materials. It consists of a suitable frame work A A, on which two parallel chambers B B, are supported at a height suitable for carrying on the manufacture; these chambers are fitted with pistons *q*, one on either end of a piston rod C; this piston rod is, in the middle, furnished with a screw D, which works in the boss or centre of the bevel-wheel G; the wheel G, rotating in the bearings S S, gears into a pinion H, on the driving shaft T (fig. 2.) On the top of the chambers are openings to receive the clay to be moulded having lids with hinges and catches. F F, are enlargements of the chambers B B, so as to admit of making larger articles if need be, and the centres of circular tiles are held in their position by bars on the inside of F F.

Figure 2.



On the left is an end view of the machine and the figures on the right are the die plates. The handle W communicates motion to the pistons which are propelled backwards and forwards in the chambers. The clay or other material is forced through the die plates represented by M, having openings the shape of the articles required, which when forced through these dies are received on carrying rollers seen at the end figure 1, where they are cut off the proper length by the cutter W, in the cutting frame N, moving in vertical slides K K, when it is then removed to make way for the material projected at the next stroke of the machine. L, is the frame for the carrying rollers and is attached to the frame work and can be either elevated or depressed so as to suit the lever of the openings of the die plates M, four different shapes of which we have here presented. The machine is mounted on rollers and can be moved from place to place.

If there is any virtue in Draining, the means to construct drains quick, permanent, neat and economical, can only be the result of mechanical invention and certainly this machine promises to be the very thing desired.—We have no doubt but many of our ingenious mechanics will be able to construct a machine by the above engravings, or upon the same principle somewhat varied in some of its parts.

On another page will be found an account of an improvement in Kilns for the purpose of going hand in hand with this machine, in order that the most minute information possibly to be derived may be presented to our readers at once upon the subject.

An Old Book.

A gentleman in New Orleans has in his possession a manuscript copy of an old Roman missal written in Latin on vellum, by a monk, about the year A. D. 300. The book is, consequently one thousand five hundred and forty-seven years old at least.

The Cambridge Chronicle Mass. doubts its authenticity.

American China.

A Mr. Wolford in Washington county, Missouri, has succeeded in manufacturing as beautiful china and granite ware from the raw materials in that region as has ever been produced in England.

The population of Egypt is estimated at five millions, who hold their lives at the pleasure of a despot

RAIL ROAD NEWS.

Double Lines.

By the American Railroad Journal we learn that Mr. Wallace, who has been long and favorably known as the indefatigable superintendent of the Buffalo and Attica Railroad, has invented a method to obviate the inconveniences arising from the different widths of the railroads to meet at Attica, and consequently of the carriages which it is requisite should run over this road. The width of the N. Y. and Erie Railroad is 6 feet. The Attica and Hornellsville track will be of the same width. That of the Buffalo and Attica track is only 4 feet 8½ inches. How, without the troublesome and expensive removal of freight from one car to another, can its transportation to Buffalo from either of the two first mentioned routes be accomplished? The invention of Mr. Wallace consists merely in having an inner and an outer line of rails, adapted for carriages of each size, so that on the same road cars of various sizes may travel in the same train—or cars of the greater width be drawn by an engine of the narrower size—or the reverse.

The citizens of Indiana on the proposed route of the St. Louis and Cincinnatti Railroad are taking active measures to forward the project. It is supposed that the counties through which the road will pass, when completed, will subscribe enough to do the grading, bridging, construct culverts, and lay the wooden rails.

A Queer Passenger.

Recently the Birmingham and Gloucester Railway mail train England, which leaves Gloucester for Birmingham at nine o'clock at night, had first passed the Spetchy station, travelling at the rate of forty miles an hour, a singular looking bird alighted on the steam dome of the engine, and remained there as if transfixed. The driver, after recovering from his astonishment, succeeded in capturing it, when it was found to be a beautiful yellow owl.

Iron Horses.

A branch of the celebrated locomotive establishment of Norris of Philadelphia, is about to locate at Buffalo. If these iron horses are brought along by our western railroads as plenty as they were purchased by them last summer, one establishment will be unable to fill all orders.

Niagara Suspension Bridge.

Operations have been commenced on the Canadian side for laying the abutments of the great bridge. A number of men have been employed in blasting and quarrying the rocks for this purpose.

Extensive Brick Yard.

Mr. Peter Hubbel, of Charlestown Mass., manufactures yearly from fifteen to twenty millions of bricks for the Boston Market. He has thirty machines in operation for moulding and with each machine makes from 10 to 12 thousand bricks per day. This is said to be the largest brick-yard in the world.

The brig Saltillo which cleared last week from Boston for St. Thomas, had on board a sugar mill, with a complete steam apparatus all valued at ten thousand dollars. It has no doubt been ordered by some shrewd planter, who wishes to reap some of the benefits of Yankee ingenuity.

In consequence of the destruction of houses and other buildings caused by the late floods, there is an immense demand for laborers in Ohio. In one village alone (Marietta) three hundred hands are wanted at present.

The human hair is composed of carbonate of ammonia, water, gas, silver, coal, sulphur, oil, iron, lime and manganese, but the brain is richer than gold.

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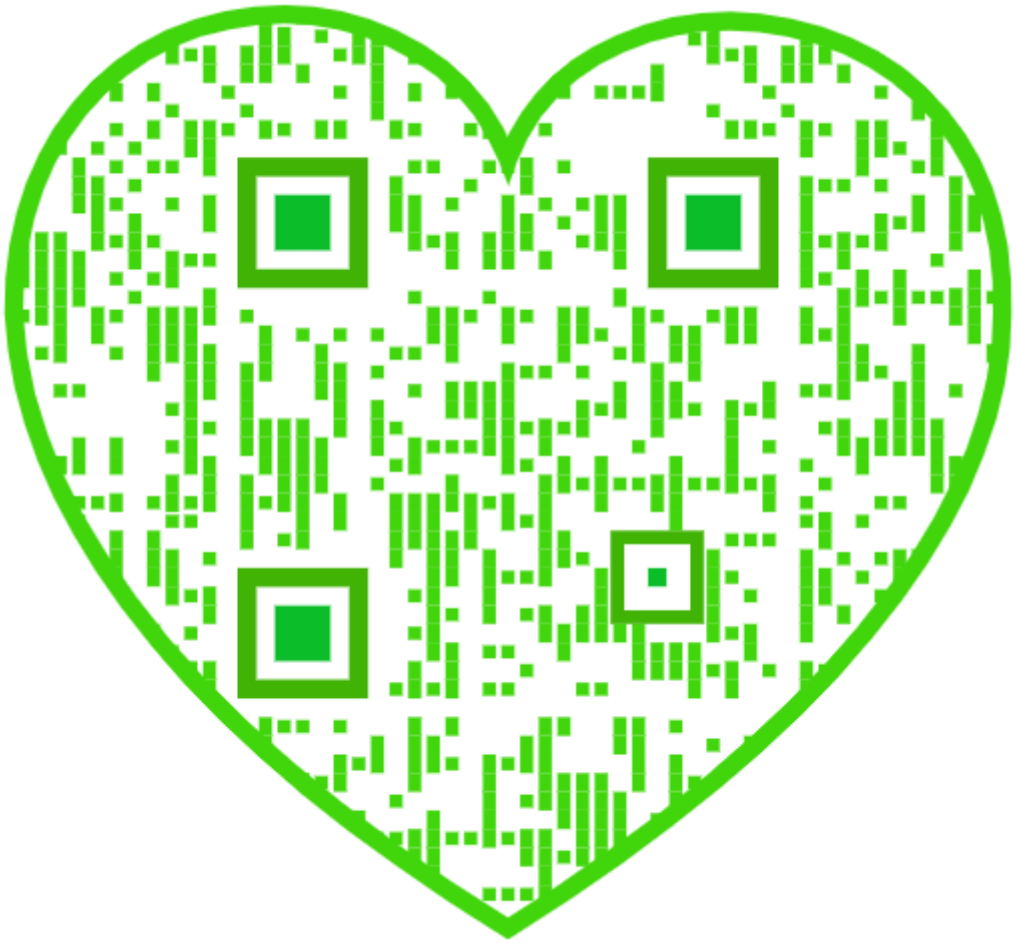

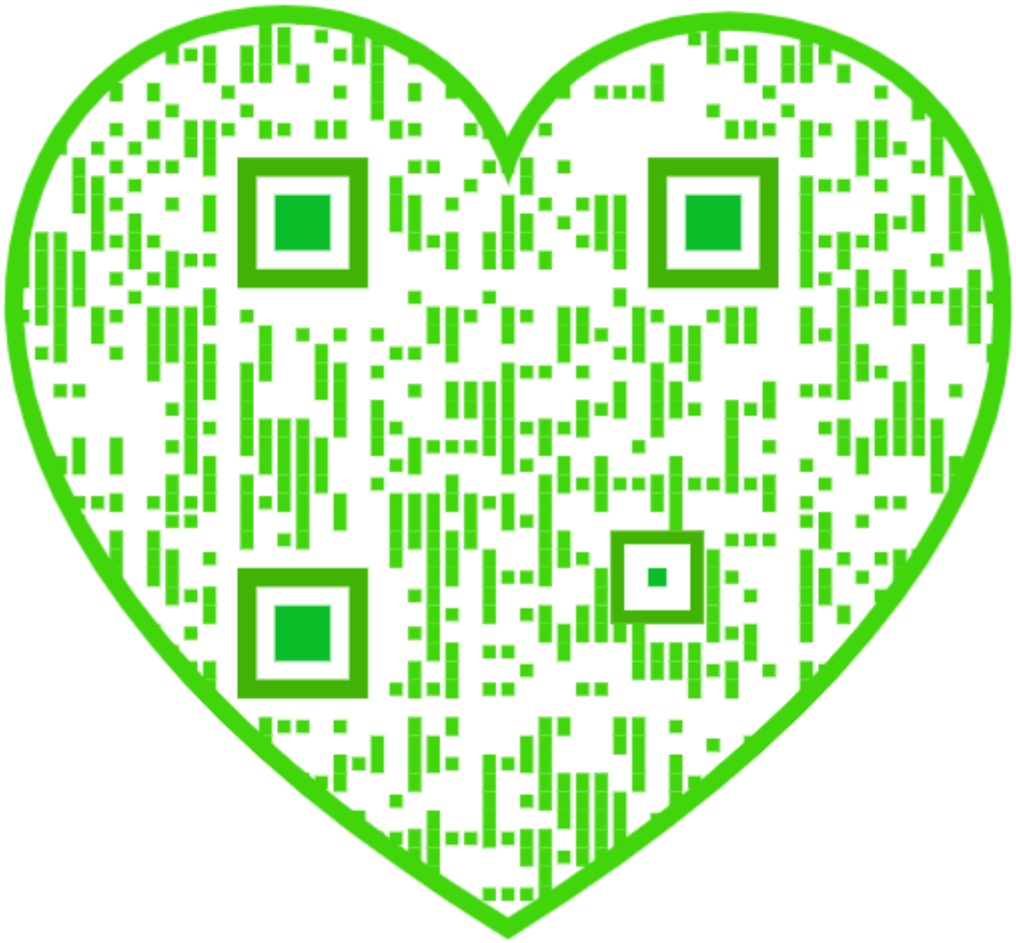

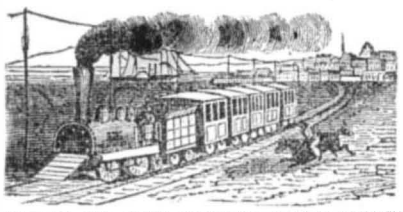

Dangerous Counterfeit.

The Journal of Commerce of this city, gives an account of a most dangerous counterfeit of gold eagles—so accurate as to defy any other test than severing the piece. They are accurate in weight, perfect in stamp, and seem to have gotten into banks extensively, and even to have defied the usual scrutiny of the mint. Upon one of them being sawn in two, it was discovered to be a mere shell of gold, the interior being filled with silver. The gold was worth $1,25, leaving a good profit to the maker. Suspicion was excited in regard to this piece by its ring, which was peculiar; but other eagles which were genuine, were found to possess the same peculiarity. So perfect a fac simile is this counterfeit that it would seem there is no safety in receiving gold coin unless each piece is tried with the file—all other tests fail against this fraud. The interior must be platina, not silver.

Death from Hydrophobia.

A child of 7 years of age died last week in Philadelphia from the bite of a dog received last August. The wound had healed up and the child appeared in good health, when on coming from school a few days before she died she complained of pain where she had been bitten, and she soon foamed at the mouth and snapped at her father. She was then confined and died amid horrible sufferings. With all our modern skill and civilization this disease is still involved in mystery and baffles a cure.

A Giant.

A Spanish Giant born in the Basque provinces, who has christened himself Goliath, but whose real name is Joaquin Eleizequi, is now exhibiting himself in London to the gaze of the wondering cockneys. The stature of this Colossus, who is twenty-three years old, already far surpasses that of ordinary giants, as he is seven feet ten inches high, and weighs 450 lbs.; but he asserts that he has not yet reached his full size, as doctors say that he will not have done growing for three years to come.

Cruelty of an Oriental Prince.

Letters from India bring the account of a strange act of cruelty on the part of the Nizam's brother. Having detected her in some crime, he caused her to be enclosed in a room built up around her, and seven of her slave girls to be locked up in another apartment having only eyelet holes through which he could witness their dying agonies. The relatives of the wife interfered, but in vain; they were obliged to obtain troops to attack the house, when she was released, nearly dead, from the horrible dungeon.

A case of cruelty as horrible as the above has lately been discovered in Glasgow Scotland. It is too horrible for us to relate, and resulted in the death of the wife of John Fay a shoemaker. Fay has been banished for life to the Australias. Civilization has her crimes as well as barbarism.

A Hermit.

A German gave his name as Gross, was last week found in the cavern of a rock, near Riker's Island, where it is said, he has lived alone for six years. The cave was so contracted that it was impossible for him to sit up in it, his only position being prostrate. His only bed being an armful of straw which served to shelter him from the cold. He subsisted entirely upon the charity of those who would give him, requiring little clothing—and what he had was in tatters. He obstinately refused to leave his abode, and the only way he could be got out of his cavern, was by tying a rope round his body and dragging him out. He is a man of about forty-five, of muscular proportions, very competent to obtain a livelihood, but too indolent to work for the necessaries of life.

On an average there are 20 or 30 social balls given every week, at different places in this city.

Odor Destroyer.

Mr. Young a chemist of Manchester England. has discovered that a waste product from the manufacture of chlorine, consisting chiefly of a solution de manganese, destroys the odor of nightsoil and other decomposing matters without impairing their fertility. The liquid is produced in very large quantities, and has hitherto been thrown away.

Chloroform.

This substance which has all at once sprung into eminence from its wonderful powers in producing nervous insensibilty, so that what were once painful operations are so no more, can be had in its purity, at E. A. Kent's Druggist, 116 John st.

Thickness of Fibres.

The thread of the silk worm is about the two-thousandth part of an inch in diameter.—The fibre of the wool varies from the seven-hundredth to the two-thousandth of an inch. The fibre of flax is the two-thousand five hundredth of an inch. The fibre of cotton is the one-thousandth of an inch, and the fibre of the pineapple varies from the five-thousandth to the seven-thousandth part of an inch in diameter.

Quiet Cure.

Chloroform is said to be a good remedy against scolding wives. A friend of ours, says the Providence Transcript, keeps it constantly on hand, and says "no family should be without it." The proper time for the husband to take it is when he sees the "squall coming up," and by the time it strikes him he will be roving through fields of unalloyed bliss. This certainly *is* a triumph of science, and the discoverer will receive the thanks of not a small part of the male portion of every community.

Choosing a Text.

The Journal of Commerce illustrates the liberal method some preachers have of quoting and constructing scripture. It mentions that one of these gentlemen took for his text these words: "Top not come down"—for the purpose of preaching a sermon against the fashions. When his hearers turned to the passage they found it to run thus; "Let him that is on the house-top not come down."

In and out of Place.

Talleyrand once said that the art of putting men in their proper places was perhaps the first in the science of government. We do not always succeed; sometimes we send men to Congress whom we ought to send to State Prison; and place men on the bench whom we ought to set before the bar: men are seen laboriously thumping the cushion who ought to be thumping the anvil. You will sometimes see a college graduate who cannot write a page of good English, nor even spell well such English as he can write.

Important.

The Yorskire papers state that Prince Albert has been most graciously pleased to accept a *fat pig*, the best of bacon, real York, a present from the Leeds Association for the Improvement of Pigs and Poultry.

Trees.

The Elm tree is full grown in one hundred and fifty years, but lives from five to six hundred years. The Oak is full grown in 200 years. The Ash in one hundred. An oak in three years grows 2 feet 19 inches; the Elm, 8 feet three inches; the Beech, 1 foot 5 inches: the Poplar, 6 feet, and the Willow 9 feet 2 inches.

The Carnage of Peace.

By the Montreal Herald, we learn that out of 100,000 Irish emigrants who left their country for Canada last year, 25,000 have already perished of famine, disease, and exposure. There is one unbroken chain of graves from Quebec along the shores of the St. Lawrence to distant Erie. Well may we exclaim what has christian civilization done to make the world more happy?

Peruvian Steamer.

There is now lying at the foot of 12th st., a beautiful steamer of the most exquisite model, built in this city by Brown and Bell for the Peruvian Government. She has two engines of 450 horse power each built at the Novelty Works on the Napier plan.

Danish Mail Route.

A company has just been formed at Copenhagen, for establishing steam communication between Denmark, the Faro Islands, Iceland, and Scotland. The communications which will take place every fortnight, are to be commenced on the 1st of April The government has accorded a reduction of port and anchorage duties to steamers which may undertake them.

Danish Colonization.

It has already been stated that the King of Denmark had sent a Commission to some of the Nacobar Islands in the Indian Ocean, to ascertain if they presented favorable circumstances for colonization. The commission having returned, and made a satisfactory report, the King has ordered two frigates to be fitted out to take on board colonists, and all the objects necessary for their establishment.

New Propeller.

The new steam propeller Columbus, for the New Orleans and Havana line made a trial trip at Philadelphia on Thursday—speed 11½ miles to the hour with 7 lbs. steam and throttle half open, It is expected that she will easily run 13½ miles per hour with a full load.

Champlain Ship Canal.

The survey of the ship canal, designed to connect the St. Lawrence river with that of Lake Champlain, is progressing. The Plattsburg Republican entertains no doubt that the examination of the intervening territory will result in the establishment of the noble enterprise alluded to.

Criminal Carelessness.

A bed in which were several children asleep, took fire one night last week at Pittsburg aad the lives of the children were only saved by the timely aid of watchmen. Every grown person belonging to the house, was out at the time.

Death after Interment.

We hear it rumored, that a female was interred in Charlestown, Mass. recently, whose body was subsequently found in a state that proved her to have recovered animation, and suffered all the horrors of death by starvation in the tomb. Many such cases are related, perfectly authentic, and of such a character as to urge upon us the importance of due caution, in not too hastily interring the apparently dead.

Union Magazine.

The February number of this beautiful monthly is received and we cannot say too much in its praise.

It is edited by Mrs. Kirkland a lady well known in the literary world, and a person who shows great skill and tact as editress of this publication. The present number is illustrated with eleven original engravings (some of these are steel and most beautiful) and a page of music, entitled "The Merry Sleigh Bell." Israel Post Publisher, 148 Nassau street.

A Plain Charge.

An able judge was once obliged to deliver the following charge to a jury. "Gentlemen of the jury, in this case the counsel on both sides are unintelligible; the witnesses on both sides are incredible; and the plaintiff and defendant are both such bad characters, that to me it is indifferent which way you give your verdict."

Songs for the People.

We find upon our table a pamphlet with this title, from the press of Zeiber & Co., Philadelphia. It is a most excellent work. It is got up in excellent shape and we recommend it to all lovers of song. Monthly, $0 per year. —*Manchester, N. H, Democrat.*

A very cheap pamphlet neighbor, and no mistake, but look out for a squall in the *composing* room. You will find that all the songs will shortly be set to D flat, if

Monthly you keep singing so,
Paying the printer with an "0."

If we suppose the density of the earth to be five thousand two hundred and forty, (the density of water,) the sun would be as ebony; Mercury as fluid quicksilver; Venus as zinc; Mars as diamond; Jupiter as milk; (would his moon be green cheese?) Saturn as the fir-tree; and Herschell as amber.

The whole of Northern Wisconsin is being transformed, with a rapidity that none can realize without witnessing, from a tenantless wilderness to a populous territory, under the joint labors of the enterprising American, and the frugal, industrious German.

The Bamboo cane is used in the East Indies for building houses and bridges, and for making cups, mats, pipes, boxes, cloth, cordage, and cables. In China it is used for making chairs, tables, bedsteads, bedding, and paper; and in the West Indies its tender shoots are pickled for the table.

Archimedes said that if he had a place whereon to rest the fulcrum of a lever he could move the earth. This was undoubtedly correct, but if he used a power of 30 lbs. at the end of the lever, he would have to work ten hours a day, for 8,775,991,580,767 centuries to move the earth one inch.

There are employed at the Novelty Works in this city, 600 men, whose wages amount weekly to $5,400. The company is building the two Bremen line steamers, the "Herman" ahd the "Franklin," besides two for the Panama line, and two others for Savannah.

There are two thousand five hundred known species of fish; forty-four thousand of insects; seven hundred of reptiles; four thousand of birds; and five thousand of maniferous animals.

There appears to be a strong and rational probabiltty that water will become the principal fuel for supplying steam engine furnaces with fire.—*Exchange.*

Irrational probability we think.

A new process is said to be lately discovered whereby iron and steel can be as easily soldered as tin.—*Ex.*

We should like to know where it was discovered and when.

At a review of 130,000 troops lately in Russia, the Emperor said this is not mere theory. In two years, I will lead these troops to glorions conquest, "I am not pleased with my neighbors."

Sir W. Young and Capt. Charitte of the British Army, have been found guilty of conspiracy in the sale of a false cadetship for £3,000.

Propositions are before Congress to increase the number of Commanders and Lieutenants in the Navy, and to establish the British grade of Admiral.

The London Times opens richly upon the iniquity of English Judiciary Courts as at at present composed of men of suspicious reputation.

Mr. Westcott offered a resolution in the U. S. Senate last Monday calling on the Commissioner of Patents for information on the subject of explosion of Steam Boilers.

A Brazillian merchant at Para, recently asked an American whether the United States were as large a town as Para. Para contains 12 or 14,000 inhabitants.

It is rumored that our Government has contracted a loan for $20,000,000 with Russia through her minister at Washington. We hope this is not true.

The Jesuit Cathedral and Academy in Elizabeth St., this City, was destroyed by fire last Sunday morning.

Prof. Malder of Dorpat, is of opinion that the comet of 1264, may be looked for during this month and February.

If cider is kept free from the action of the atmosphere, it is more pure in color than after it is exposed.

An eccentric old gentleman of a short memory was in the habit of addressing letters to himself through the post office.

The Rothschilds are about to establish a branch of their house in this country.

A Bill is before Congress to charge 25 cents on all foreign letters.

The Bill to punish adultery has been passed by the Senate of this state.

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Improved Plan of Kiln for Burning Drain Tiles and Pipes.

From the Mark Lane Express we gather the following information relative to an improved method of burning tiles for agricultural draining.

Almost every tile-yard where the present plan of burning prevails, in large covered kilns, very great inconvenience and delay are often experienced by the difficulty, and in most cases the impracticability, of burning the tiles so as to keep pace with the moulding. And this difficulty is increased by the adoption of machinery, and during the earlier and later parts of the season, when the more fickle state of the weather prevents the tiles from drying, and the sheds soon become surcharged.

There was exhibited at the meeting of the Yorkshire Agricultural Society, by Mr. Charnock, of Wakefield, a Tile Kiln which promises to obviate the inconvenience alluded to

Instead of the present large kilns, the model consisted of a series of small compartments placed alongside each other; each compartment or kiln, being fifteen feet long by four feet wide, and eight feet high, and holding about 4,000 2 inch pipes, besides the bricks at the bottom. The plan of operating is to burn every alternate compartment, and at the same time to have each compartment between those that are in process of burning, set with either dry or half-dry tiles; so that by the time the tiles on either side are sufficiently burnt, those between are dried up to oven-heat, and the fires may be put under them as soon as the other compartments are ready to draw. Thus with a kiln containing such a number of these compartments as may be found suitable to the requirements of each yard, a *constant and regular succession of burning may be kept up simultaneously with the process of moulding*, and an opportunity be thereby afforded of clearing the sheds of tiles in an incomplete state of dryness

The plan is novel and presents advantages and many competent and practical men have concurred in thinking it a valuable improvement. And as Mr. Charnock expressed his readiness to afford every information to parties desirous of adopting it, we shall be curious to learn whether our opinion of its merits is confirmed in practice.

Mr. Charnock stated that his experience had led him to the conviction that it was more economical, and certainly more convenient for the systematic conducting of the works, to burn the pipes in two kilns of smaller size, rather than in one large one containing the same number; and it was in the conviction he believed the extension of that principle might be most beneficially adopted in the form we have endeavored to describe.

Fermentation.

Fermentation was the subject of consideration at the last weekly meeting of the Newark, N. J. Franklin Institute.

Starch may be changed into sugar artificially by mixing it with water, and then throwing in a little sulphuric acid, without which it will not dissolve, and then add something to take out the acid, as common chalk, which is a carbonic acid, and forming a sulphate of lime, or plaster of Paris, which sinks to the bottom of the liquid, leaving the water a syrup, which which may be evaporated and leave the sugar dry. If a little more oxygen be added to this syrup it will then become alcohol.

One part of starch, with 12 parts of water —which must be renewed as fast as it evaporates—will become sugar and gum at the end of a month. A few years ago some persons in London attempted to evade the duty on the manufacture of sugar; instead of making sugar directly, they converted starch into syrup, and instead of drying it to sugar, made what they called honey, which this syrup very much resembles, and thus evaded the duty.

Wheat flour contains gluten and starch, which may be separated by maceration; the gluten assists fermentation.

Molasses, in being transferred to rum will give gallon for gallon.

Wine begins to ferment as soon as the juice comes from the press.

The Inventor of Printing with Moveable Type.

In the city of Strasburg, on the Eastern frontier of France, there stands, in the principal square, a large bronze statue of Guttenburg, the inventor of the art of printing with moveable types. It is a full length figure of that fortunate individual with a printing press at his side, and an open scroll in his hand, with this inscription *And there was light.* Upon the several sides of the high pedestal on which the effigy stands are four tableaux in bas relief, designed to represent the art of printing or the general progress of the world. In one stand the names of the most distinguished scholars, philosophers and poets, of all times; in another the names of those who have been most eminent for their achievements in the cause of human freedom; conspicuous among which is an allusion to our Declaration of Independence, with the names of Washington, Franklin, Hancock, and Adams.

On the third side is a representation of Philanthropy knocking off the fetters of the slave, and instructing the tawny children of oppression in useful knowledge: and on the fourth is Christianity, surrounded by the representatives of all nations, and tribes, and people, receiving from her hand, in their own tongue, the word of Eternal Truth. Christianity! Heaven-born Christianity! Divine Philosophy! look down with indifference or disdain on that bearded man, at work with tools in his smutty shop, away on the Rhine. Affect to overlook and undervalue him as a mechanic? A mechanic? Why out of those bars of wood and pounds of metal, and ounces of ink, he is constructing a machine to make the nations think. The inventive thought and manual skill of that workmen of tools convert him into a greater preacher than Paul, or Ambrose, or Chrysostom. He is constructing wings for Christianity herself, which will bear her with the music of her silver trumpet to all the abodes of men. The secular is transmitted into the religious, for the press gives power and progress to religion, and Christianity rewards with smiles all art which aids her advancement.

Serpents in a Pile in South America.

In the Savannahs of Izacubos in Guiana, I saw the most wonderful, and most terrible spectacle that can be seen; and although it be not uncommon to the inhabitants, no traveller has ever mentioned it. We were ten men on horseback, two of whom took the lead, in order to sound the passages, whilst I preferred to skirt the great forests. One of the blacks who formed the vangaurd, returned at full gallop, and called to me—"Here, sir, come and see the serpents in a pile." He pointed out to me something elevated in the middle of the Savannah or swamp, which appeared like a bundle of arms. One of my company then said, "this is certainly one of the assemblages of serpents, which heap themselves on each other after a violent tempest; I have heard of these but have never seen any; let us proceed cautiously and not go too near." When we were within twenty paces of it, the terror of our horses prevented nearer approach, to which none of us were inclined.

On a sudden the pyramid mass became agitated; horrible hissing issued from it, thousands of serpents rolled spirally on each other shot forth out of their circle their hideous heads, presenting their envenomed darts and fiery eyes to us. I own I was one of the first to draw back, but when I saw this formidable phalanx remained at its post, and appeared to be more disposed to defend itself than attack us, I rode around it in order to view its order of battle, which faced the enemy on every side. I then thought what could be the design of this numerous assemblage, and I concluded that this species of serpents dread some collosean enemy, which might be the great serpent or cayman, and that they re-unite themselves after having seen this enemy, in order to resist him in a mass.—*Humboldt.*

Ancient Dentists.

Among the Romans there were men, mostly all Greek slaves, who extracted teeth and professed to cure the toothache. They supplied the loss of natural by artificial teeth, which were made of ivory and fastened by gold wire.

Russian Marriages.

Marriages in Russia are curious The priest meets the parties at the door of the church. The relatives also enter, having received the benediction of the priest. They go with him to the altar, where he puts wax candles in their hands—a crown is placed on the bridegroom's head. The priest puts a ring upon one of their fingers, and it is passed round till it is placed on the finger of the bride. He goes round the altar, followed by the friends and the couple—he gives them his benediction. It takes place in the richest churches in Russia. The same ceremonies are performed on a marriage in the family of the Emperor, except that the crown is held above, not placed on their heads. Being once present at a marriage of the royal family, the crown was held up by boys, and it was amusing to see them stretching themselves to hold it up. The music was delightful. I have frequently heard the choir of the Pope, but it is nothing when compared with what I heard at that marriage. I never heard music so touching. Their dresses were beautiful. The bride had a train 12 feet long, made of rich velvet. and lined throughout with ermine and it took five men to bear her train, and as she moved round the altar, followed her. It was attached to her dress below the shoulder. There were many things about it very imposing. The Te Deum was sung most beautifully. There are many singular things connected with their private life. When making a dinner, the host and hostess do not sit, but like Abraham, serve their guests The gentlemen go up to the ladies and kiss their hands and if they are intimate, the lady kisses his cheek. These are Asiatic customs but there is no doubt in a few years they will pass away and European be introduced in their place.—*Dr. Baird.*

A Mother to Her Daughter on her Marriage.

You are now, my beloved child about to leave those arms which have hitherto cherished you, and directed your every step, and at length conducted you to a safe, honorable and happy protection, in the very bosom of love and honor. You must now be no longer, the flighty, inconsiderate, haughty, passionate girl, but ever, with reverence and delight, have the merit of your husband in view. Reflect how vast the sum of your obligation, to the man who confers upon you independance distinction, and above all, felicity. Moderate then, my beloved child, your private expenses, and proportion your general expenditure to the standard of his fortune, or rather, his wishes. I fear not that, with your education and principles, you can ever forget the more sacred duties, so soon to be your sphere of action. Remember the solemnity of your vows, the dignity of your character, the sanctity of your condition. You are amenable to society for your example, to your husband for his honor and happiness, and to Heaven for those rich talents entrusted to your care and your improvement.

Chinese Grass.

There is in China an article grown and manufactured into clothing, no description of which is to be found in any of the works of travellers who have been in that country. Its native name is *Mae* and it answers the purpose of silk and hemp combined. It is an annual, sown in drills, in February, and gathered in August. It grows on dry hilly soil, like tea, all over China, and in every variety of climate—much of it within two or three day's journey of Canton. Its consummation is enormous; it may be found in its various degrees of quality, among all classes of the vast population, worked into almost every description of fabric; in the largest cables of their junks and in the choicest texture of clothing worn by the luxurious classes Like silk, it is there an article of universal consumption. There is no article at present known in the country that could be substituted for it. It is scarcely exported at all.

Dancing.

A gentleman describing the absurdity of a man's dancing the Polka, appropriately said, "that it appeared as if the individual had a hole in his pocket and was futively endeavoring to shake a a shiling down the leg of his trowsers."

Foreign Items.

At the meeting of the Paris Academy of Science on the 20th Dec, M. Le Verrier read a paper on the periodical comet discovered at Rome in August 1844 by M. Vico. M. Le Verrier is of opinion that the periodical comets of 1844 and 1770 are two different bodies, and not identical, as supposed by some astronomers. He also thinks that there is no identity with the comet of 1585 as supposed by M. M. Laugier and Mauvais.—A note was communicated from M. Vico, announcing the disappearance from the heavens of three stars of different magnitudes which had been marked on the celestial charts. Several letters were received giving an account of an aurora borealis seen in the evening of the 17th ult., in the departments of the Seine, Seine-Inferieure, Seine-et-Marne. and Loire-Inferieure.—A letter was received from M. Perro, an engineer of Piedmont, giving an account of the working of clocks on the compensation system laid down by M. Laugier. M. Olin gave an account of a new break for railway carriages which, he says, has an instantaneous action, whereas on all the other breaks there is a loss of 10 or 12 seconds during which the train may advance more than 150 yards. A letter was received from M. Guenard, a farmer, communicating some successful experiments with the use of salt as a manure in the growing of corn.—A paper was received from M. Schneider of Strasburgh, on the manufacture of Sulphuric acid without the use of leaden chambers.

Humorous Inventions.

The Victoria Pap spoon. This spoon feeds the babies, serves as a baby jumper, rocks the cradle, draws the baby wagon, plays with the poodles, takes paregoric, and washes out diapers. As a nursery assistant it is indispensable.

Egg Hatching Machine.

The system of artificial incubation or hatching eggs by artificial means is revived by Mr. Cantelo, at the Cosmorama rooms in Regent st. The present plan is a great improvement of the "Eccaleobion," which was simply an India-rubber machine, which is filled with hot water, and it being placed upon the eggs they are kept at an equal temperature of heat and the result in every instance has been most successful, as only a small per centage of the eggs are lost. His exhibition has attracted much attention.—*Jerrold's Mag.*

This does not yet equal the Illinois machine of a barrel full of eggs and the hen on the bung hole.

The latest invention for juveniles, (an accompaniment to the baby-jumper,) is a sort of mill turned by a crank, by which three children can be licked at a time. By the aid of this machine too, much labor is expected to be saved to the school teacher in the discharge of his arduous duties

How we Look.

How we appear to other people's eyes, is an oft proposed query, yet one that cannot be hardly satisfactorily answered.

"If Providence the gift would gie'us
To see ourselves as others see us,"—

we should think we were looking through the wrong end of the telescope at our virtues, and had a highly magnified view of our vices —we should at least, did we look with some people's eyes,—others might flatter us, even more than our own.

At a late sale in London the auctioneer in offering for sale some busts of Shakspeare and Milton, described them to be portraits of two of the most brilliant stars of the age.

There are many hours in every person's life which are not spent in anything important: but it is necessary they should not be passed idly.

Great men like great cities, have many crooked parts and dark allies in their hearts, whereby he that knows them may save himself much time and trouble.

Earthenware is glazed with lead, acids dissolve it, and is therefore dangerous to be used for domestic purposes.

Pickles and vinegar should never be kept in earthenware dishes. Stoneware or wood vessels are best.

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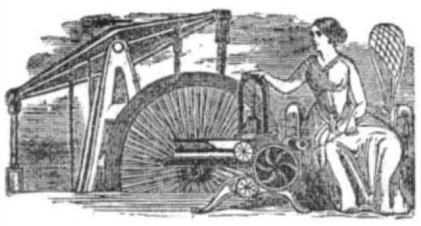


New Inventions.

Machine for making Emery and Sand Paper.

A machine has been projected by Mr. Gilbert Gorries, of Troy, N. Y., for the rapid and economical manufacture of sand and emery paper. It embraces the whole process of grinding the sand, glass and emery and applying it to the making of the paper in one machine. It will, therefore, be of great advantage to manufacturers to have the whole apparatus thus connected and combined together in a neat and compact manner. There is one thing to which we would desire to direct attention in the grinding of such substances as sand, plaster, snuff, glass or emery for manufacturing purposes, viz. some perfect apparatus to prevent the fine dust from destroyso many lives of operatives that attend to the machinery.

New Last Machine.

Mr. E. Webber, of Gardiner, Maine, has invented a new machine for turning irregular surfaces and duplicating copies of lasts, &c., upon a principle entirely different from those in common use. This machine has not a pattern to take merely a duplicate, but has simply a block of wood or iron as a gauge for a cone of saws by which the last is cut out in a very simple and perfect manner.

Machines for turning irregular surfaces are not new, as may be seen from some of the old Encyclopedias, but there is much about the arrangements which Mr. Webber's machine new, at least in the manner in which the principle is appplied.

New Mitre Box.

Mr. Arthur Husten, of Bristol, Maine, has invented a very simple and convenient Mitre Box most excellently adapted to saw bevils correctly and quickly to any angle. It will be a good companion to the Joiner and Millwright and Cabinet maker, and can be got up at a small expense. It is well adapted for cutting mouldings, &c., and no doubt will yet be much used by workers in wood. We will be able to give a more lengthy description in another number along with an engraving.—Measures have been taken to secure a patent for the invention.

Improvement in the Turning Lathe.

Mr. Joseph Willard, of Grafton, Mass., has made a very ingenious and simple improvement in the Turning Lathe. It consists of a collar to be attached to the arbor of the pulley to hold and adjust axletrees for turning, and which operates very correctly and beautifully.

A New Musical Instrument.

The Saturday Courier, of Philadelphia, states that the celebrated Æolian attachment to the Piano, which was invented by the late Mr. Coleman, has been constructed in a distinct form from the Piano, and is now sold as a separate instrument. It may be justly considered, in this form, a church instrument, and will be a most acceptable affair for those who are conscientious with regard to the ordinary Piano. It makes a handsome piece of furniture, and may be constructed to suit the taste of the purchaser.

New Propeller.

A new mode of propelling steamers has been invented by Mr. Benj. Barker, of Ellsworth, Maine, which appears to be a great improvement, as it is a combination of the screw and paddle wheel, and named the *Inclined Tortuous Paddle Wheel.*

New Life Boat.

The British Admiralty have adopted the use of life boats made of a stuff called Kamptucas, invented by Lieut. Lucas of the Navy.—It is a close combination of ground cork and India rubber.

Improvement in the Power Loom.

Mr. R. P. Cunningham, of Abington, says the Norwich (Conn.) Courier, has for some time past been at work upon an improvement which promises, so far as we can judge, to be of no small importance to manufacturers. The improvement consists mainly in this, that with a given amount of power, any ordinary loom can be made to do much more work with, than without the improvement.

If we are rightly informed, the average speed of the power loom commonly in use, is about 100 picks per minute, while the improved loom will bear a variation in speed very much below or above—even as high in cases as 200 picks per minute;—and Mr. Cunningham is entirely confident that a loom with his improvement may be increased in speed from at least 15 to 30 per cent, without any increase of breakage of yarn, or wear and tear of machinery.

[It would be well in all cases, in describing improvements on the power loom, especially in relating the number of shots thrown per minute, to mention the quality of weft used, whether 20's, 36's or 40's or 50's, and also the number of picks in the *glass.* We do not care how well a loom may be constructed, we defy a weaver to make any more than 80 picks per minute, with some kinds of weft but we know of some looms working at this moment averaging 30 per cent, above the average speed mentioned in the above paragraph, with good weft—Ed.

Eliptographic Compass.

I forward you a sketch of a simple instrument for drawing ovals, which I made several years ago from an old work, and which only requires to be known, to come into general use, as from its simplicity and ready action, it will be found of great service to the perspective draughtsman. The construction is so simple, as not to require a detailed description. To use it, set the point of the leg on which the pencil slides, in the centre, and the pencil to the half breadth of the eclipse, then extend the steadying leg until the pencil, as in the position in the figure cuts the length; steady the instrument with one hand, and with the other turn the pencil round, allowing it to slide up or down its guide, so as to keep the point pressing lightly on the paper. It must be clear that the figure described by the revolution of the pencil is a perfect ellipse, as it is an oblique section of a cylinder. When the ellipse is very long, this instrument will not answer well, but for a large proportion of those which occur in perspective, it will be found very useful, in this I can speak from experience.

I have shown both legs adapted to receive the pencil, and those of different lengths, as it will be more convenient than the old form with one round leg, if the ellipse is wanted nearly circular.

This engraving is sufficiently minute and clear to explain itself, and will only require good workmanship to make it a most perfect instrument.

Yours, &c., G. S.

[We have seen a drawing of the above instrument before, but we presume it will be new to many of our readers.—Ed.

Asphalte Felt Roofing.

T. J. Croggin has secured a patent from the English Government for Asphalte Felt. He describes it as principally made of hair, completely saturated with asphalte, without pitch tar or rosin, and consequently more durable, a good non conductor of heat, entirely impervious to rain, frost and snow, and superior to all other descriptions of roofing on account of its lightness, elasticity, economy and durability, because it may be laid on by unpractised persons. Its price 1 penny the superficia foot, or 9 pence the square yard,—and it may be manufactured of any required length, 32 inches wide.

[We are not able to state whether this is native asphaltum or retinite, or a new composition.—Ed.

New Washing Machine.

We like to see some attention paid to machinery for abriging the severe labors of the good housewife. In ancient days, the gentle female, as is now the custom in barbarous nations, had to grind all the food for the family. This was very severe labor and the man who invented the first meal mill was a great benefactor to the human race. The invention was so much esteemed by an ancient poet, that it was the subject of one of his sweetest songs. A good washing machine we think should be as indispensable a piece of household furniture as a pot, or a pan—the washing of clothes is just as essential to health as the eating of bread. We never expect to see a machine so perfect as to wash lace or fine muslins. The human hands in some things will stand unapproachable, but for washing common clothing safely and easily, we think that Messrs Whitman & Pratt, of Weedsport, N. Y., have invented a most simple and beautiful washing apparatus. The motion is rotary and can be easily prepared. Measures have been taken to secure a patent.

Improvement in Casting Pipes.

Mr D. Y. Stewart of Montrose, Scotland, has taken out a patent in Britain for a new mode of casting iron water or gas pipes, or other cylindrical tubes, by which a far more superior material is produced, at a much less cost than the usual method. The mould consists of a perpendicular cylindrical iron box, of the required size, with a shaft in the centre, longer than the mould, and communicating with the machinery above, by which it is kept revolving, and, as it revolves, it gradually rises. At the bottom of the shaft is an instrument which may be termed a "presser" or rammer," consisting of an iron block having inclined tabular faces; of such smaller diameter than the box as to leave the sand of the required thickness for the mould. On feeding the sand at the top of of the box, it is distributed towards the sides, and the shaft or rammer gradually revolving and rising press it with great force against the sides of the box, leaving the mould finished and perfectly cylindrical on its arrival at the top, ready for the insertion of the core. The amount of pressure against the sides is regulated by means of a counterpoise weight.

The following are the advantages claimed by the patentee:—1. A perfectly straight cylindrical pipe of uniform thickness. 2. No parting of any kind. 3. Dressed at one half the ordinary cost: 4. Less sand used than in any other way, and consequently easier dried if required. 5. The casting and sand easier removed from the boxes than in the ordinary way 6. The flasks, or boxes, better calculated to resist the pressure of the metal than any now in use. 7. This method is the best for casting pipes perpendicularly that has hitherto been employed. 8. The greatest recommendation of all is, the simplicity of the apparatus which requires the attention of a boy only; who, with the machine as at present working, turns out easily six pipes of six inches bore per hour. Two miles of water pipes have been laid by the patentee at Montrose, and the town council passed him a vote of thanks.

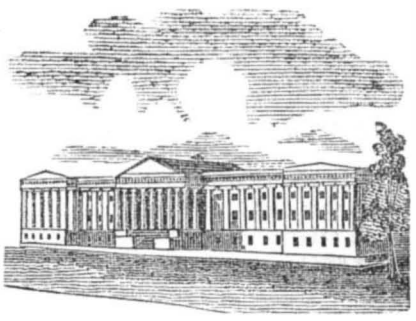
First Patent for Water Conveyance.

In 1716, Mr. Hugh Middleton, a citizen, and goldsmith, having obtained a patent, he brought water by means of pipes into all the streets of London.

Tripoli.

A mineral, pronounced by geologists to be pure Tripoli, has been discovered in this country, and is now being manufactured by a company formed for that purpose. For cleansing the surface of glass, or removing the oxide from metals, it is certainly without an equal. Windows can be cleansed with this article with one half the labor that is required with water, and the work is done much more effectually.—*Cambridge, Mass., Chronicle.*

We should be glad to learn where it is manufactured.—Ed.



LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending Jan 18, 1848.

To Starr Fairchild, of Trumbull, Conn for improvement in hanging Carriage Bodies. Patented Jan. 18, 1848.

To George Wood, of Boston, Mass., for improvement in Folding Shower Baths. Patented Jan. 18, 1848.

To William Jackson, of Syracuse, N. Y., for improvement in Cooking Stoves. Patented Jan. 18, 1848.

DESIGNS.

To William P. Cresson, S. H. Sailor, Jacob Beesley, David Stewart, of Philadelphia, Pa., for Design for Stoves, (having assigned their right to William P. Cresson, aforesaid.) Patented January 18, 1848.

To Elihu Smith, of Albany, N. Y., for Design for Stoves. Patented Jan. 18, 1848.

INVENTOR'S CLAIMS.

Chimneys.

By John B. Kelsey, of Newburyport, Mass. Improvement in construction of chimneys. Patented 11th September, 1847. Claim—I am aware that for the purpose of preventing chimneys from smoking, the external air has been heated and made to pass into them above the throat of the fire-place. I am aware also that a chamber has been made in the rear of a fire-place and jambs for heating air to be admitted into a room for heating it, and that said chamber has communicated with the external atmosphere, or that of the room or cellar below, by means of pipes. I am aware that the air to be warmed has been introduced between the mantel and arch of a chimney, such having been the subject of a patent granted to one Joseph Gilbert on the thirteenth day of November, A. D. eighteen hundred and forty-four. I therefore do not lay claim to any such modes of preventing chimneys from smoking, as separately considerad, but that which I do claim is, First. The combination of the air chamber in rear of the back and sides of the chimney, or any part thereof, with the inlet air pipes or passages, and out-let pipe leading into the room, the said pipes having dampers in the valves in the manner as described. And for the purpose of distributing the heated air, and using part of it for the chimney and part for heating the room, I claim the combination of the two separate chambers card their respective inlet and discharge pipes, valves, &c., as arranged and made to operate together substantially as specified.

Compositions for Machinery.

By Philip Zeber, of Reading, Pa., John Hancock of Philadelphia, Pa, and Patrick S Devlan of Reading, Pa.. Improvement in Compositions for lubricating Machinery. Patented 11th September, 1845. Claim—What we claim as our invention and desire to secure by Letters Patent is the combination or admixture of water, sal soda and gum tragacanth, the ingredients herein named, in the manner and for the purpose as herein specified.

Door Knobs.

L. R. Livingston, John J. Roggen and Calvin Adams, of Pittsburg, Pa., for improvement in the shanks of Door Knobs. Improvement added Dec. 11, 1847. What we claim as our additional improvement is the connecting the respective shanks of the knob to the lock by means of the tooth in the halved portion of one shank fitting to an aperture in the halved portion of the other, and confined to each by the tumbler, the tube projecting from the side of the lock, and the escutcheon secured to the door, combined and operating with each other.

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NEW YORK, JANUARY 29, 1848.

Education---What is it ?

The value of all knowledge should be estimated by its relation to the common affairs of life. No one we trust will dispute this sentiment. For this reason then, every young person should be educated in those branches of knowledge which relate distinctly to the profession he intends to pursue. The youth destined to be a clergyman, should make himself familiar with the ancient languages, but the young man who is destined to be a merchant should rather make himself familiar with the languages of the living, than seek to become acquainted with the thoughts of the dead by the language in which those thoughts were uttered. The education of the mechanic and agriculturist should be practical, derived from accumulated experience and certainly the elementary branches of our common educational system is the basis on which the superstructure is to be raised. The first branches to be learned and learned thoroughly then, should be reading, writing and arithmetic. Without these, no further advances should be made in any other branch—these first, then as many afterwards as possible. After this should come Natural Philosophy, and here let us say, this truly is real knowledge—real education. We do not mean to be understood as setting aside moral ethics, for we consider that virtuous and religious sentiments should be supplied to every person from the very moment the child begins to recognise the mother that presses it to her bosom from the stranger that may enter her door. But what we mean by Natural *Philosophy* is, that it embraces all the varied kinds of knowledge whereby a man can become truly great as a scientific man and a practical man too. The mechanic who understands his own branch of business thoroughly, is a natural philosopher, so far as that branch of business is concerned, and if he is a millwright and can make and calculate the power and effect of a water wheel, and explain the natural principles of its operations, he certainly is a better educated man, and possesses more knowledge than the linguist who can merely name the wheelin five or more languages. We do not undervalue a knowledge of languages, but we say again, first master the elementary branches thoroughly, then natural philosophy, and afterwards as much information as possible.

We have been led to make these remarks from perceiving a great absence among our mechanics of the certain kind of knowledge which every man ought to possess in the business which he is following, and we sincerely exhort them to reflect calmly on the famous adage, "knowledge is power." We think that we have pointed out clearly what true knowledge is, and every man knows how he can gain it if he has the time to apply himself and the means. Many have not the time or means, especially our mechanics who have families, but for our young men, there is no excuse. Throughout all the Mechanics Associations in our land, we should like to see a system of conversational instruction adopted, a familiar questioning and answering. Education by no means consists in merely reading, writing, arithmetic, or an acquaintance minute though it may be, with the natural sciences. After having acquired all these, we can exclaim with Newton, that we have only gathered up a few pebbles on the shore of the ocean of knowledge, but certainly if we gather not up a single pebble at all, we must be unprofitable to ourselves and recreant to the duties we owe to our God, our country and our fellow men.

Science is but an arrangement of facts—experiments—and certainly our working men have the best opportunities to acquire the most correct knowledge—to be mostscientific—each in his own branch of business. This is education, and it is such an education that a lifetime is not too long to acquire thoroughly. Let every working man be guided by these sentiments and in a short time we shall behold every mechanic walking with a front more erect and a mind more elevated. Poverty is no excuse in America for a man not being a gentleman, and riches no badge for a man to be proud and lordly. Any man of an honest heart and a noble and cultivated mind, is fit company for senators or princes. "Tis worth that makes the man."

Clairvoyant Miners.

A company is now formed at Jackson, Michigan, called the "Clairvoyant Exploring Company of Michigan," for the object expressly stated "of examining different sections of the country for coal, iron and other treasures which are hid from natural vision, and to direct the enterprising in their labors, to prevent constant losses by digging in vain, and also to direct improvements in machinery and applying them aright."

This company is undoubtedly the greatest invention of the age and it is a great pity that it had not been organized before the expensive Geological Survey of this State was made. What a saving it would have been, but then those were days when such etherial light had not penetrated into our bedarkened country.

The clairvoyants of Michigan have taken a great deal of trouble out of the hands of our inventors, and as they are to preside over improvements in machinery, we suppose that the Patent Office will be laid upon the shelf as a relic of the dark ages. Our machinists and millwrights and engineers should lay down their squares and compasses, and refer the whole subject of machine manufacture and engine and railroad construction to the *seers* of Michigan. Mr. Ellet, who is to construct the Niagara Falls Suspension Bridge might find it to his advantage to refer his stupendous undertaking to such gifted clairvoyants. He might wake up some morning and "like the baseless fabric of a vision," behold his bridge spanning the chasm of the Niagara beautiful as the rainbow at the Falls, as firm and as *durable*. What lucky fellows these clairvoyants are. They can know every thing. We have often tried a magnetic flight but have never yet got above our chair and have always been proof against such spiritual locomotion. No wonder we have heard of gold mines being discovered in Michigan lately.

Revolving Shuttle Box.

Mr. E. Burt, of Manchester, Conn., informs us that the first plaid, or gingham power loom that was put in operation in this country, was made with a revolving box fitted on the periphery of a wheel about eight inches in diameter. This was twenty years ago, and it was patented in 1828. Shuttle boxes were used on both ends of the lay at the same time but laid aside as of no advantage.

The revolving box is therefore not such a novelty as many have supposed. Mr. Burt is the well known inventor and patentee of a Check Loom patented in 1837, and a *stop* motion patented in 1845. He is, therefore, minutely acquainted with the progress of the check loom in America. If we mistake not, the first power check loom was put up in this State in 1839 by John Allan, who introduced it in Troy, Rennselaer Co., from Glasgow, Scotland. It was then thought to be a perfectly new invention. This was two years after Mr. Burt had taken out a patent. This simple fact should be enough to convince every patentee. that the true way to let their inventions be known to the world, is to publish the same in the Scientific American. Here the manufacturer looks for such information, and had the Scientific American been in existence in 1837 Mr. Burt's loom would have been introduced into this State at an earlier date than Mr. Allan's, and the just reward would have been his.

The Light of Knowledge on Mount Lebanon.

A seminary has been opened at Abeih, on Mount Lebanon, to be under the superintendence of Mr. Calhoun, who is now on a visit to this country. There are 18 common schools besides, containing more than five hundred pupils. The press there has sent forth about four hundred thousand Arabic pages, and the mission is about commencing a new translation of the Scriptures into the Arabic tongue.

For the Scientific American.

Reaction Water Wheels.

While conversing with Millwrights I have frequently noticed the want of accurate information respecting the principles of Reaction water wheels, yet I think these may be explained upon the simple principles of natural philosophy. Let us suppose an upright pinstock to be filled with water. Its pressure is equal on all sides, but if we make an aperture on one side, it relieves that side of an amount of pressure according to the size of the opening (so much to an inch, which is easy to ascertain,) while the pressure on the other side is the same as before. By this principle it is seen that if we place a tub or cylinder, filled with water on wheels to give it easy play backwards and forwards, and make a hole on one side, the effect will be, that the carriage will move in an opposite direction from the issue, just as a gun recoils opposite to the point where the shot has found vent.

There is another principle, however, connected with reaction wheels, which must not be overlooked, and it is one which gives the only importance to reaction water wheels as prime mover of great utility and economy, I mean the centrifugal force generated by the rotary motion, a principle which many eminent scientific men have completely overlooked

I once saw an accomplished millwright at work constructing a reaction water wheel upon a vertical shaft. It was for a saw mill having a fall of seven feet and he made the heads of his wheel about three feet. I asked if his wheel was not too large for the fall, when he observed that "from much experience he had discovered that the motion was not according to the size, that a wheel of a certain diameter would revolve about as fast as one of a less diameter," a fact which I have since discovered to be the result of centifrugal force of the wheel, and which will be made more plain by the following cut.

BARKER'S MILL.

This is a cut of Barker's Mill, a very worthy though not a new invention. The shaft is euclosed in a hollow cylinder and by the water falling into this and its pressure kept continually up and being allowed to escape at the extremities of four lower arms placed as displayed in the cut, a circular motion of the shaft will be the result from the reaction of the water escaping. But supposing that we closed up all the apertures but one, and found that it still revolved, nearly as fast as when the four were open, what would we say ? We must conclude that centrifugal force had something to do with it—that the velocity given to the surface was caused by a centrifugal force which increases upon the principle of the *parabola*, as the water is thrown from the centre.

As the principle of all reaction water wheels are the same, the above is a fair representation of the principle, however different may be the various modes of construction, and no doubt there is a great difference in the economy of power, by the superior construction of some in comparison with others. D. T.

South Rutland, N. Y.

[We have in our possession the accounts of some very minute experiments with the results of power according to the quantity of discharge, presented to us by Mr. Parker, the first patentee of a reaction water wheel in the United States.—Ed.

The French Steamers.

The losses of this line, up to the present time, are said to amount to two millions of francs, or about $375,000. The company are about asking the government to make up this loss. For the present the four ships are to cease running, in order to be refitted and provided with new furnaces, increasing the power of the engines. They will resume their trips in March or April.

Manufactures of the South.

A report has been laid before the legislature of Georgia on this subject, from which it appears that there are 32 cotton factories in operation or in progress of construction in that state. Thereare invested in the building and working of the 32 factories, two millions of dollars.—The number of hands engaged in them now is near three thousand, and of persons directly receiving their support from them, six thousand. The consumption of provisions and agricultural products other than cotton, is three hundred thousand dollars per annum, at present prices. The consumption of cotton annually reaches 18000 to 20,000 bags, and the manufactured goods turned out by them last year was about one and a half millions of dollars. One third of these manufactured goods were sold out of the state mostly in the northern markets and partly in the valley of the Mississippi—that illimitable field of consumption. The coarser goods manufactured in Georgia says the report, stand high in the northern markets and command a preference over all others of the same styles. This is owing to the fact that they are made of better cotton. In one instance a shipment of fifty bales of Georgia yarns, by one of the companies to China, was well received, and gave satisfaction in the market.

The report does not state what the profit is on the capital invested is. It is stated however, to run from twenty to forty per cent.

A friend of ours from Savannah while on a visit to this City last summer, informed us that he had no idea of the activity which prevailed in that City nor of the enterprise manifested generally throughout the State. In regard to all natural advantages which can make a prosperous commonwealth, Georgia is perhaps more richly endowed by nature than any other state in the Union.

Copper.

Crocker, Brothers & Co., of Norton, Mass., are melting from fifteen to eighten hundred tons of ore per annum. This is converted into sheathing copper, tubes, nails and the cents for the U. S. Mint, prepared ready for stamping, averaging about sixty tons a year.

One rolling mill in Taunton, Mass., turns out about 1500 tons of copper in sheets, bars, bolts, &c. per annum ; and at another establishment one hundred tons of copper rollers for calico printers are manufactured.

American Navy.

According to the official reports we now have 5 ships of the line, 1 razee, four frigates 13 sloops, 5 brigs, 11 schooners, 4 bomb gun vessels, 1 ordnance transport, 12 steamers, 6 store ships—total 62. Vessels in ordinary, Nov. 1847—1 ship of the line, 8 frigates, ten sloops of war, 2 steamers,—total 21. The official estimates of the naval service the coming year amount to over ten millions of dollars, besides six millions of dollars for the marine corps.

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Ewbank's Hydraulics.

To the Editor of the Scientific American

Without the remotest interest in the work, but simply as an acknowledgment of benefits derived from it, and a desire to direct the attention of a class of men to it, who above all others are interested in the matter it contains, I respectfully submit the accompanying remarks on "Ewbank's Hydraulics and Mechanics." A PATENT AGENT.

New York, Jan. 18, 1848.

One of the traits of this popular volume has not, I think, been so fully appreciated here as in Europe, viz. its practical value to mechanics and inventors. This was one of its features noticed particularly by British writers. The Atheneum said, "it is a book which every mechanic and inventor ought to consult." To which the editor of the Architect's Journal added, "it is capable of saving infinite trouble and mortification to inventors." These declarations have been remarkably verified in the recent history of some English machines and of their truth and force I have had some professional experience. Hardly a month has elapsed in the last two years without one or more examples occurring in my own office.—It is truly lamentable to meet (with a view to prepare drawings and specifications for them) men with models of ancient devices—to hear them speak of the time spent to mature them and of difficulties they had to surmount, &c., perfectly ignorant that the same things, substantially and often identically, had been discovered, tried and laid aside—never dreaming of being anticipated—incredible when told so, and not unfrequently getting angry at the gentlest hint in that direction—men, who had they bought and read the book in question would, beside saving their time and money have avoided spending their energies in vain

Not half a year has elapsed since an old and very respectable mechanic arrived in this city from one of the Western States, bringing with him a machine which probably did not cost him less than between three and four thousand dollars. He had been years employed upon it and had spent the greater part of his life in the department of Arts to which it belonged. Preparations were made to exhibit it in public, and in the meanwhile a gentleman was solicited by the inventor to examine it, and urged to give a candid opinion of its novelty and merits. *It was found fully described by Ewbank.* What became of it I have not heard. Ewbank's work was first published in 1842. Had this unfortunate mechanic consulted it he would with many others have been prevented from sowing the wind and reaping the whirlwind.

State and County rights for a patent rotary machine were lately, and I believe still are, offered for sale. *Ewbank has described and figured a similar one* of French or German origin, and of remote date. Not a month ago an inventor insisted on forwarding thirty dollars with an application to Washington for a patent, for a device in much the same predicament: nor has the moon waxed or waned since an application of Bellows to raise water has been seeking purchasers in this city. Ewbank shows that Bellows pumps are among the earliest devices for that purpose, and has given numerous illustrations on the subject.

These are specimens of at least a score of cases that have recently come within my own knowledge.

Before determining to prosecute any supposed new invention, I would urge every one to consult this book; and before laying down a dollar I would earnestly advise all who are about to become partners in or purchasers of patent rights, to have recourse to it. I do this from a conviction that few persons under such circumstances can follow the advice without being grateful for it, and that none can turn over its leaves with that intent without profit. This book I know *has* saved individuals from wasting their means on specious but worthless devices—devices rendered still more deceptive by interested statements. It has prevented thousands of dollars here, and as many pounds sterling in Europe from thus being thrown away. It has done more, for it has turned many ingenious men from the pursuit of phantoms—by breaking the enchantment at the beginning; it has prevented not merely heavy losses of time and money and the useless wear and tear of their physical and mental powers, but that prostration and sickness of heart which accompanies the dissolution of long cherished hopes, and a bitterness of disappointment that in some instances has driven reason from her throne.

[The incident referred to in regard to the "Mechanic from one of the Western States," came under our own observation.]—ED

The Lately discovered Volcano in Victoria Land, towards the South Pole.

With a favorable breeze, and very clear weather, we stood to the southward, close to some land which had been in sight since the preceding noon, and which we then called the "High Island;" it proved to be a mountain twelve thousand four hundred feet of elevation above the level of the sea, emitting flame and smoke in great profusion; at first the smoke appeared like snow-drift, but as we drew nearer, its true character became manifest. The discovery of an active volcano in so high a southern latitude cannot but be esteemed a circumstance of high geological importance and interest, and contribute to throw some further light on the physical construction of our globe. I named it mount Erebus, and an extinct volcano to the eastward a little inferior in height, being by measurement ten thousand nine hundred feet high, was called "Mount Terror." * * * At 4, p. m. of the 28th January, Mount Erebus was observed to emit smoke and flame in unusual quantities, producing a most grand spectacle. A volume of dense smoke was projected at each successive jet, with great force, in a vertical column, to the height of between fifteen hundred and two thousand feet above the mouth of the crater, when condensing first at its upper part, it descended in mist or snow, and gradually dispersed, and gradually to be succeeded by another splendid exhibition of the same kind in about half an hour afterwards, although the intervals between the eruptions were by no means regular. The diameter of the columns was between two and three hundred feet, as near as we could measure it; whenever the smoke cleared away, the bright red flame that filled the mouth of the crater was clearly perceptible; and some of the officers believed they could see the lava pouring down its sides until lost beneath the snow which descended from a few hundred yards beneath the crater, and projected its perpendicular icy cliff several miles into the ocean.—*Ross's Voyage of Discovery.*

Elephants in Quicksands.

On the banks of the river there are many quicksands, and during this expedition, a somewhat distressing scene occurred. An elephant incautiously came within the vortex of one; first one foot sank and then another; and in endeavoring to extricate himself matters became worse, no portion of either of his legs was at last visible, and the bystanders had given up the poor animal as lost. Being, fortunately, unusually powerful, he three several times, with what appeared to all supernatural strength, drew a foot from the closely clinging earth, placing it where, by sounding with his trunk, he found most solidity; not until the third time, did the ground bear his pressure, when he gradually released himself. During the whole period of his troubles, his cries were extremely dolorous, and might have been heard a couple of miles; his grunt, when they were at an end, was equally indicative of satisfaction. The internal application of a bottle of strong spirits, soon dissipated his trembling and restored equanimity.—Many unfortunate elephants are lost in these treacherous sands, when large quantities of grass or branches of trees are not at hand to form an available support to them. After a certain time the poor beast becomes powerless, and the owner can only look with sorrow at the gradual disappearance of his noble animal, and lament the pecuniary loss he sustains, for all human aid is futile. They have been known to be twelve hours before entirely sinking.—*Hand Book of India.*

The discovery of chloroform is now attributed to an American, Samuel Guthrie, of Sackett's Harbor in the State of New York, who is said to have published accounts of his discovery in the American Journal of Arts and Sciences, volume 21 and 22—1831 and 1 32.

For the Scientific American.

Chemitype Printing.

The art of Wood Engraving is now admitted to have arrived at perfection. Yet there are still many difficulties in the art to contend against, at least of such a kind as to prevent a supply equal to the demand upon real works of merit. This lies principally in the material. Many schemes have been resorted to, in order to overcome the disadvantages of wood engraving for printing. Glyphography, and anastatic printing have come and gone—passed the ordeal and received the verdict of public opinion. Another scheme has within the past two years been added to the list of inventions. It is that of a Dane, Herr Pul, of Copenhagen, who gave it the name which heads this article. By this method an engraving made in the usual way, may be converted into a high relievo stamp to be printed in the ordinary press like wood cuts.

On a highly polished plate of zinc an etching or engraving is made in the usual method which under common circumstances would be fitted for the engraver's press. Zinc being a positive metal, the tracery thus attained on the plate is to be electrotyped with a negative metal while the zinc plate itself is corroded by a certain acid and thus the cavities of the drawing on the zinc plate appear as a high relievo stamp. This effect is produced by the lines of the tracery not being acted upon by the acid of corrosion. The principle rests upon the positive and negative nature of the metals.—We have seen a few samples of this kind of printing and have no hesitation in saying that it will yet supersede wood engraving for large plates, but never for small engravings. It is very correct in regard to lines, and there are none of those light spaces in large engravings of the chemitype, which mars the beauty of the wood cut by the joining of the boxwood pieces together, because no large blocks of that wood are to be found.

We have lately seen accounts of an invention called the Chemitype Printing, a description of which is shortly to appear in a pamphlet by a Mr. Doubry, in this city. It appears to be somewhat different and more simple than Herr Pull's invention by the brief account of it in the American Whig Review. Time and experience will test fully this new art. It may be no better, if as good, as wood engraving. We are not too sanguine of its complete success. The Anastatic system was to supersede wood engraving entirely, but it has not affected it in the least and is far inferior in producing meritorious works. G. R.

The Way in which French Wine is made.

Wine is made in a very simple and cheap manner. I shall mention the simplest, which by many persons is also considered the best. When the grapes are ripe they are gathered, and placed, either with or without the stalks, in large vats where they ferment during a few days—from eight to fifteen. At the end of that period and when great fermentation has taken place and ceased, the wine is entirely in the lower part of the vat, the other parts of the grape are at the top of it. The wine is drawn from the vats and placed in casks. There it must be allowed to remain for some time without being disturbed.

After three or four months have elapsed, even before, very often, immense quantities begin to be consumed by the working classes in our country, and by far the greater proportion of a year's growth is thus consumed during the twelve following months. But wines to be consumed by the middle and rich classes, must be kept in cellars for several years (from 3 to 6 years) in casks, and require no other care than to be drawn once or twice a year from the casks, in order to separate the wine from the dregs. When by such simple process, and a certain time, wine has become sufficiently old, it is drawn from the casks, and put in bottles. The longer French wine remains in the bottle the better it is. Its quality is thereby improved to an extraordiuary degree.—*M. Lalande.*

It is stated in the London Sun, that a barrister of high renown in Ireland, at the present time has a drove of 150 peacocks on his estate, and that he spends a large sum of money in importing grasshoppers for their consumption from Italy. "Kicked to death by grasshoppers," ought to be the fate of that fellow.

Lord Rosse a Mechanic.

On one occasion when he was but a youth, he went to an exhibition at the Adelaide, Gallery, where some kind of London steam engine, was being exhibited, By some means or other, the exhibitor could not set his engine going; all his efforts to effect it were in vain, and he was about to give it up in despair, when Lord Rosse, stepped forward, and said he thought he could make it work. No sooner said than done. He put his hand to the work, discovered by an instant's look where the machinery was out of of order, and made a few turns, put all to rights and then the machine to the admiration of the company worked beautifully.—Lord Oxmantown (for that was then his only title,) was dressed rather roughly, and not in drawing room habiliments, so that he might be mistaken for what he was not—a poor mechanic. He had already, however, proved himself to be a first rate one. Led by his rather rude appearance to suppose that he was a workman who would be glad of a job, a gentleman accosted him, and saying he was in want of a man of talent like him, offered to employ him, at a liberal salary. Lord Rosse, of course politely declined the offer, which, however, was perhaps as honorable to him who made it, as to him to whom it was made.

Occupation of our Legislators.

The present is the first House of Assembly in this State which has been elected under the single district system; and one effect has been the return of an unusual small number of practising lawyers. The House contains but two editors, both from New York city. There are 50 farmers; 16 mechanics; 17 merchants; 2 sailors or navigators, one of them being a "ferryman," and t'other a "mariner;" 4 manufacturers; 20 lawyers, including the Speaker; 1 clerk, and 5 gentlemen; 1 lithographer; 1 engineer, and 1 hotel keeper. They are described as active business men, able and willing to transact business to advantage the public affairs given them in charge. A few Europeans by birth are in the House, and the rest are citizens by birth. Of the 2,600,000 inhabitants of this State, it has been estimated that full one-fifth were not born within the limits of the republic.

TO CORRESPONDENTS.

"A. H. of N. H."—It is impossible to judge of the value of a rotary engine, or any other, but by a fair trial. How many have been constructed with the most sanguine expectations and yet have failed in their results Mr. Benson's rotary engine (Baltimore,) overcomes all the difficulty of a vibrating lever. He uses 4 pistons on a wheel, operating in the inside of a single cylinder.

"J. R. L. of Mass."—The information has been sent by mail.

"R. J. of Mass."—The gas evolved from the nitrate of ammonia being exposed in a retort to the flame of a spirit lamp, is the laughing gas. It should be collected over milk warm water, and left exposed in the vase over water for two days before it is used. The nitro ammonia should not be exposed to a great degree of heat.

"L. P. M. of N. Y."—We are happy to hear that you are so well satisfied.

"S. McD. of Pa"—We have something in view for you. Your rotary engine may work well for a short time, but we venture to say that the numberless parts submitted to the heat of the steam will soon get out of order by the expansion and contraction.

"M. A. C. of Conn."—Use more alkali.

"T. T. W. of New York."—Poppy oil is by far the best for miniature painting. It is not easily got. The nut oil so common is not rightly made. We shall give a receipt for this at some other time.

"G. C of Ohio."—There is no work on electro magnetism that is *minute* in *describing* its laws. The fact is, that its laws are not yet laid down, because they are not known, but it is to be hoped that we will soon have more revelations on this science, as the greatest philosophers in the world are now engaged in investigating the subject. Liebeg supposes that it never can be applied profitably to propel machinery. Time will corroborate or negative this statement, as there is much effort put forth just now to make it

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available to produce economical propelling power.

"W. E. L. of Black Rock."—By next week we think that the information desired will be obtained. We have corresponded for that purpose.

"C. H. A. of New York."—Under a 12 feet fall a good reaction wheel is said to be better than an overshot wheel. With your small quantity of water and 20 feet fall, the overshot wheel is the best for your purpose. Sutton & Smith, Kensington, Philadelphia, manufacture Parker's reaction wheels, and you will see an advertisement in the Scientific American of Haviland & Tuttle, South Boston, Mass., who make excellent reaction water wheels.

"J S. of Mass."—A good perspective is necessary.

"J. H. L. of Pa."—The numbers cannot be sent without breaking the volume.

"R. K. of Boston."—See No. 3, vol. 2 Scientific American.

"S. J. of Vt."—You have not calculated upon any thing but your regulating rod. The regulator will expand equal with the rod, and therefore the whole apparatus is constructed with the first object only in view, the latter neglected. No wonder that it would not operate.

"S. M. B. of Mass."—You are right in regard to the effect of power in a reciprocating engine It is a most erroneous idea with some that the crank destroys one half of the effective force. Three-tenths is the calculation of loss. Few rotary engines can return equal per centage.

"F. F. of Mass."—It would not be possible without some further explanation to give you a correct answer. Probably $10 or $12 would do the whole business

"M. J. J. of Ohio."—You will see by our pages that we have attended to your request.

"S. G. of New York."—Use bromine water.

"J. M. H. of Ohio."—We can probably furnish you with the 2d volume any time within 6 months.

"H. T. G. of R I."—Your communication shall appear next week.

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Applications for Patents made at this office, on the most reasonable terms. Neat drawings, specifications, and engravings of the first character, and cheaper than anywhere else. Notices of new inventions, Agency for the sale of Patent Rights, and all business of that nature, promptly attended to. Those who have patent rights to dispose of will find a good opportunity and field for their sale—such as Horse Power Machines and Waterwheels of every description. The largest circulation in the world for advertisements of inventions, &c.

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It must be apparent to every one that it is no easy matter to look over seven or eight thousand names to find a certain one to erase, and we wish that our patrons would bear this in mind and always in future to mention at what place they have formerly received their paper, as well as where they in future desire it sent.

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☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

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THESE Machines have been extensively used the past season for driving the largest Threshing Machines and Separators in New York, Michigan and Wisconsin, and have exceeded the most sanguine expectations of all concerned in strength, durability, ease of operation, efficiency and cheapness. They received the highest premium at the Onondaga and Washington County Fairs, and the approbation of all who have seen them in use. It is, I think, perfectly obvious that no other arrangement with two pinions can ever be produced of equal simplicity and convenience by being permanently mounted and operating in any direction without unfastening from the ground and belting above the horses they are rendered so perfect that forty cords of heavy wood have been sawed twice in two in a day by four men and three horses.

Rights of territory, patterns of wood or iron for casting, and horse powers, for sale by the subscriber, or by Henry Olds, of Syracuse, N. Y., my authorised Agent.

DANIEL WOODBURY.

Perkinsville, Vermont, Jan. 5, 1848. j22 6t*

Fire and Burglar's Alarm.

THIS Invention by Messrs. Tomlinson & Hopkins, is worthy the attention of the public. One of the Alarms may be seen at this office, where application may be made for the purchase of rights, either State, County, Town, or single; or where orders can be left to have them adjusted to any building in the city. MUNN & CO. j15

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Room No. 1, Sun Buildings. j15 3m*

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j8 4t* S. S. REMBERT, Memphis, Tenn.

Lap-welded Wrought Iron Tubes

FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,
d26 28 Platt street, New York

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CANDELABRA, GIRANDOLES, RICH CHINA AND BOHEMIAN GLASS VASES, HALL LANTERNS, &c.

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Suspending Solar Lamps, gilt and bronzed.
Bracket do do do
Side do do do
Solar Chandeliers, do do 2, 3 4 and 6 lights.

Camphene Suspending Lamps, gilt and bronzed.
do Bracket do do
do Chandeliers do do 2, 3, 4 and 6 lights.

Girandoles—Gilt, silvered and bronzed, various pats.
Candelabras do do do
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November 29, 1847. d18 6m

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THE Subscriber having received Letters Patent for an improvement in the Shingle Machine, is now ready to furnish them at short notice, and he would request all those who want a good machine for sawing shingles, to call on him and examine the improvements he has made, as one eighth more shingles can be sawed in the same given time than by any other machine now in use.

Augusta, Maine, Oct. 1, 1847. J. G. JOHNSON.

Magnificent Portrait of General Taylor.

☞ We have a few thousand left, which we will dispose of at 25 dollars per thousand, 3 dollars per hundred, or 4 cents singly, or 30 copies for one dollar. They may be forwarded by mail. Address at this office. d25

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Photogenic Paper.

The paper is to be dipped in a solution of salt in water, in the proportion of half an ounce of salt to half a pint of water. Let the superfluous moisture drain off, and then lay the paper upon a clean cloth, dab it gently with a napkin, so as to prevent the salt collecting in one spot more than in another. The paper is then to be pinned down by two of its corners on a drawing-board by means of common pins, and one side washed or wetted with the photogenic fluid, (weak nitrate of silver) using the brush prepared for that purpose and taking care to distribute it equally. Next, dry the paper as rapidly as you can at the fire, and it will be fit for use for most purposes. If, when the paper is exposed to the sun's rays, it should assume an irregular tint, a very thin extra wash of the fluid will render the color uniform, and, at the same time, somewhat darker. Should it be required to make a more sensitive description of paper, after the first application of the fluid the solution of salt should be applied, and the paper dried at the fire. Apply a second wash of the fluid and dry it at the fire again; employ the salt a third time, dry it, and one application more of the fluid will, when dried, have made the paper extremely sensitive. When slips of such papers, differently prepared, are exposed to the action of daylight, those which are soonest effected by the light, by becoming dark, are the best prepared.

Paper dipped in a solution of the bichromate of potass, and dried without exposure to the rays of light and kept secret from the rays of the sun makes excellent photogenic paper. Take paper prepared in this way, place a picture or a flower, or a leaf upon it and expose it a few minutes to the rays of the sun and beneath the flower on the leaf there will be light and shade according to the thickness or attenuity of the various parts of this pattern of nature.

When photogenic drawings are finished in a perfect way, the designs then taken on the plate or paper are exceedingly beautiful and correct, and will bear to be inspected with a considerable magnifying power, so that the most minute portions of the objects delineated may be distinctly perceived. We have seen portraits finished in this way by a London artist with an accuracy which the best miniature painter could never attempt, every feature being so distinct as to bear being viewed with a deep magnifier. And in landscapes and buildings, such is the delicacy and accuracy of such representations, that the marks of the chisel and the crevices in the stones may frequently be seen by applying a magnifying lens to the picture, so that we may justly exclaim in the words of the poet, "Who can paint like Nature!" That LIGHT—that is the firstborn of Deity, which pervades all space, and illumines all worlds—in the twinkling of an eye, and with an accuracy which no art can imitate, depicts every object in its exact form and proportions, superior to everything that human genius can produce.

How the Velocity of Light is Proved.

The eclipses of the moons of the planet Jupiter had been carefully observed for some time and a rule was obtained, which foretold the instants, in all future time when the moons were to glide into the shadow of the planet and disappear, and then appear again. It was found that these appearances took place sixteen minutes and a half sooner, when Jupiter was on the same side of the sun with the earth, than when on the other side; that is, sooner by one diameter of the earth's orbit, proving that light takes sixteen minutes and a half to travel across the earth's orbit, or eight minutes and a quarter to come to us from the sun. We behold the flash of a cannon long before we hear its report.

A glass tube may be drawn out to the fineness of silk, and liquids made to pass through it afterwards.

For the Scientific American.

The Formation of the Eye.

All the works of man's ingenuity are infinitely surpassed by the Eye. Its structure is truly wonderful. The exterior parts are admirably defended from injury, being surrounded with durable orbits of bone, they cannot be easily hurt. The eyelids by closing when we sleep shut out the light from disturbing our repose and the eyebrows both beautify and protect from dust the beautiful and delicate orb. The eyelids break the force of light and guard the sight from many injuries. The globe of the eye is composed of tunicles, muscles, humors and vessels. The *cornea*, or exterior coat, is transparent; under this is the *choroid* which is full of vessels, and the next is the *urea* which is circular and colored.—There is an opening in the middle of it called the pupil which appears black, and lastly the *retina*, which is a fine fibrous expansion of the optic nerve. There are three humors in eye, the watery immediately under the cornea, thin and transparent, the crystaline behind the opening in the middle of the urea, and the vitrious, so called from its resemblance to melted glass, which fills the hind part of the cavity of the globe and gives the spherical figure to the eye. There are six muscles of the eye which enable it to move in all directions. Vision is performed by the rays of light falling on the outward coat of the eye, which by its compactness and convexity unites them into a focus and they are passed through the pupil of the eye to be more condensed by the crystaline humor. The rays of light thus brought to a common centre penetrate the vitrious numor and stimulates the retina upon which the images of objects painted in an inverse direction, are represented to the mind through the medium of the optic nerve. The extreme minuteness of this picture is wonderful, for the space of eleven hundred yards, when it is represented in the bottom of the eye, makes no more than one-tenth of an inch.

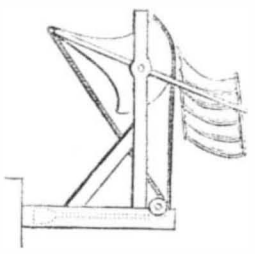
The faculty of our sight is a wonderful property of human nature. Though the images of outward objects are painted upon the retina upside down, yet we see them in their proper positions, and what is astonishing with such a small organ as the eye, we perceive the largest objects and scan their dimensions. From the towering rock we can behold the numerous buildings of a large city below with the utmost exactness, and these are painted with precision upon a surface three times the size of a pin head. Millions of rays coming thro' the pupil are united in the retina without confusion and are preserved in harmony and order. From the topmast of a vessel we can behold the ocean covered with a vast fleet and innumerable waves rolling around us, and yet each of the waves, small as they may be, reflects a volume of rays upon the eye. How seldom are these things reflected upon. The habit of seeing leads us to consider this thing as simple in itself, but still it is not yet in our power to explain the manner in which we come to see objects. We know how the image forms itself in the bottom of the eye, but the eye itself has no idea of what passes into it. The impression must reach the brain, and to do this, the rays must paint an image on a coat woven with nerves. In this way the motion impressed by the rays upon the retina is transmitted to the brain by the optic nerve, and thus we take an interest in objects which surround us, but here we can explain no more. We are as yet ignorant of the connection between matter and mind and hence it is, that although we may be delighted by gazing on a beautiful picture, or a lovely landscape, we cannot give a reason for the feeling or an explanation of the sensation. G. R.

A Tooth Discharged from the Ear.

The London Lancet for December has a letter from Dr. Coates, gives an account of the case of an old man, whom he found suffering with severe pain in one side of the face and head, which were highly inflamed and swollen. Fomentations, poultices, &c., were applied for two or three days without avail. One night a fit of sneezing forced out of the ear, which had discharged pus, a piece of bone that proved to be one of the wisdom teeth of the upper jaw. After that he soon recovered.

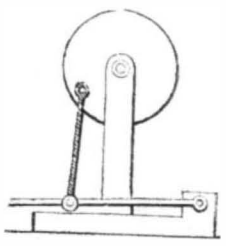
MECHANICAL MOVEMENTS.

Wind Mill.



The above cut represents a method of applying the direct action of the wind and has often been proposed within the past few years somewhat modified, but the same in principle as displayed in the engraving. The plan is not very new and it altogether depends upon the vibrating action of the sector by the preponderance of the wind, or counterweight as the wind may vary.

Reciprocating Circular and Rectilinear Motion.



This cut represents a method of producing reciprocating from circular motion. It is a common way of operating by a pulley and connecting rod to obviate the construction of a crank. It is the crank principle, and no more. From this old motion have all the ideas of lever trip hammer motion been derived, except the direct motion of Nasmyth's steam hammer. This principle was also applied to the early power looms for lifting the treadles, but a more simple plan is now used by cams lifting the treads, said cams being affixed on a shaft.

It will be observed from a mistake of the engraver, in not cutting the bar with dotted lines and showing it to work on the other side of the upright, whenever the pin of the connecting chain comes to the upright, it is *there*, and there it will stick, very much like a *space annihilator* that appeared a short time ago in the columns of one of our cotemporaries. It was in the same predicament, and instead of annihilating space it *annihilated* itself.

Novel Ornament.

At the Lord Mayor of London's last banquet there was placed in the midst of an elaborate trophy in honor of the birthday of the Prince of Wales, a magnificent plume of feathers, with a royal coronet and motto, "Ich Dien," This splendid object measured nine feet in height, and, with the exception of the stems, which were of gilt metal, was composed entirely of spun glass of the finest texture and most dazzling whiteness; the fibres which constituted the feathery portion of the plume, were as fine as hair, and had the soft and glossy appearance of silk. Their flexibility admitted of their being formed into the most perfectly natural shape; and thus a highly graceful elegance had been preserved in the whole arrangement. As a matter of curiosity it may be added that the combined length of the several fibres of glass employed in the construction of this interesting ornament was equal to fifty thousand miles.

Coloring Alcoholic Liquors.

This is done by burnt sugar. The sugar is burnt to such a degree that it loses its original properties and turns into *caromel*, a red substance, which will not dissolve in water but will in alcohol and then it will form a mechanical mixture with water. All liquors are white when distilled but are afterwards colored by this caromel or burnt sugar according to the fancy or design of the various liquor makers. The quality of alcoholic drinks cannot be distinguished by the color. Caromel is also the name for the smell arising from the sugar while calcining.

An elastic ball room of immense proportions, divided by sliding pannels to advance or retire according to the number of tickets sold, is being built in Paris for the winter

Sun-Painted Landscape.

A few artists in London have formed what they denominate a Calotype Society. It consists of some dozen amateurs of Sun-painting who correspond on the subject of their art-science. Some of the Sun-painted landscapes produced by the members. resemble highly finished and brilliant etchings of Rembrandt. The operations of this Society may be regarded as yet in their infancy; but they are destined to confer no small advantage on Art—by recording for the landscape and building painter more accurate and finished studies than his time or inclination would enable him to make.

Cough Syrup.

The following cure is recommended for colds, which has been tried and found to be an infallible cure. It is worth trying.

"Put a quart of hoarhound to a quart of water, and boil it down to a pint.—Strain it, and put the water to a pint of molasses, and simmer the whole down to a pint. Then add two or three sticks of liquorice, and a table spoonful of essence of lemon. Take a table spoonful of the syrup three times a day, or as often as the cough may be very troublesome."

Candlewicks.

The wick should be smooth without knots, bleached and not so thick as they are erroneously and commonly made, and if they are dipped in spirits of turpentine and dried before moulding it will be found to be a great improvement. If a small quantity of beeswax be melted with the tallow for candles it is also a great improvement, as the candles will be found to last much longer and not be so apt to run.

The most important desideratum to be accomplished in the fine arts, is to so prepare a a daguerreotype plate so as to transfer the impression to a lithographic stone.

There is a permanent lake of sour water in Texas not far from Nacogdoches. It is the resort of invalids.

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